# ABSTRACT

## ISOLATION AND CHARACTERIZATION OF CHITOSAN FROM SIMPING SHELLS (*Placuna placenta*)WASTE

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The purpose of this study were isolation and characterization of chitosan from the Simping shells (*Placuna placenta*) waste using deproteination, demineralization, and deacetylation procedure. The chitosan production from the Simping shells powder consists of three stages, including deproteination, demineralization, and deacetylation. In the experiment 1, deproteination stage must be performed first using NaOH 3.5% 1:10 (w/v), stirred for 4 h at 40°-50°C; demineralization using HCl 1.25 N 1:10 (w/v), stirred for 2 h at room temperature; and the last stage is deacetylation using NaOH 60% 1:20 (w/v), stirred for 1 h at 110°C. In experiment 2 and 3 the demineralization stage was done first, then proceeded to deproteination and deacetylation stage in the same way as in experiment 1. In experiment 2, the demineralization using $HNO_3$ 2 M 1:10 (w/v), stirred for 1 h at room temperature, while in experiment 3 using HCl 2 M 1:10 (w/v), stirred for 2 h at room temperature. The chitosan produced was identified using FTIR spectrophotometer and the chitosan characterization was done, especially the degree of deacetylation. Based on chitosan isolation result, it can be concluded that chitosan can be isolated from the Simping shells (*Placuna placenta*) waste using deproteination, demineralization, and deacetylation procedure. Isolated chitosan yield were 2.53% (experiment 1), 1.09% (experiment 2), and 0.17% (experiment 3). The isolated chitosan has OH group, CH group, NH (primary amines) group, and CO group corresponding to the chitosan standard with degree of deacetylation are 84% (experiment 1), 62% (experiment 2), and 66% (experiment 3).

*Keywords : Chitosan, Waste, Simping shells, Placuna placenta*